

WHAT IS CLAIMED IS:

1. An off-axis image projection system, comprising:
  - an illuminating source, emitting an illuminating beam;
  - a reflective displaying device, for modulating the illuminating beam to form a
  - 5 reflected image-formation beam;
  - a projecting lens set, wherein the reflected image-formation beam is directed to
  - the projecting lens set along a light path; and
  - at least one first plate, implemented on the light path between the projecting lens
  - set and the reflective displaying device, wherein the illuminating beam from the illumi-
  - 10 nation source enters the first plate and is reflected to reflective displaying device by a
  - non-zero incident angle, and then the reflected image-formation beam travels through
  - the first plate and enters the projecting lens set.
2. The off-axis image projection system of claim 1, wherein an included angle
- between the first plate and the light path is in a range of greater than  $-45^\circ$  and less than
- 15  $0^\circ$  as well greater than  $0^\circ$  and less than  $45^\circ$ .
3. The off-axis image projection system of claim 1, further comprising a field
- lens, disposed adjacent to the reflective displaying device, wherein the illuminating
- beam is incident to the reflective displaying device through the field lens, and the re-
- flected image-formation beam travels out through the field lens.
- 20 4. The off-axis image projection system of claim 1, further comprising:
- a polarizing plate, implemented between the illuminating source and the reflec-
- tive displaying device, for polarizing the illuminating beam; and

an analyzer, implemented between the first plate and the projecting lens set, for analyzing the reflected image-formation beam.

5. The off-axis image projection system of claim 1, further comprising:

a plurality of reflective displaying devices, wherein the reflective displaying devices respectively relates to color illuminating beams, wherein a plurality of color image-formation beams are formed by modulating the related color illuminating beams;

a color splitter, implemented between the illuminating source and the reflective displaying devices, wherein the illuminating source is split by the color splitter to have the color illuminating beams, which are respectively incident to the related reflective displaying devices;

a color combining device, implemented between the reflective displaying devices and the projecting lens set, wherein the color combining device combines the color illuminating beams to form the reflected image-formation beam; and

a plurality of first plates, respectively implemented on the light paths between the projecting lens set and the reflective displaying devices, wherein the color illuminating beams split by the color splitter are respectively incident to the related first plates, and then are reflected by the first plates to the related reflective displaying devices by a non-zero incident angle, and the color illuminating beams separately travel through the related first plates and reach to the color combining device.

6. The off-axis image projection system of claim 5, further comprising a plurality of field lenses, wherein the field lenses are respectively adjacent to the reflective displaying devices, wherein the illuminating beams are respectively incident to the reflected

tive displaying devices through the field lenses, and the reflected image-formation beams travel out through the related field lenses.

7. The off-axis image projection system of claim 5, wherein an included angle for each between the first plates and the light paths is in a range of greater than  $-45^\circ$  and less than  $0^\circ$  as well greater than  $0^\circ$  and less than  $45^\circ$ .

8. The off-axis image projection system of claim 5, further comprising a plurality of second plates respectively implemented between the color splitter and the related reflective displaying devices, wherein the second plates allow the illuminating beam to be perpendicularly incident to the color splitter, wherein the split color illuminating beams are respectively incident to the second plates and are reflected by the second plates to the first plates.

9. The off-axis image projection system of claim 5, further comprising:  
a plurality of polarizing plates, relating to the reflective displaying devices, and respectively implemented between the illuminating source and the related reflective displaying devices; and

a plurality of analyzers, relating to the reflective displaying devices, and respectively implemented between the color combining device and the first plates.

10. An off-axis image projection system, comprising:  
an illuminating source, emitting an illuminating beam;  
a color splitter, for splitting the illuminating beam into a plurality of color illuminating beams;

a plurality of reflective displaying devices, respectively receiving and modulating the color illuminating beams to form a plurality of color image-formation beams;

a projecting lens set, wherein light paths exist between the projecting lens and the reflective displaying devices;

a color combining device, implemented between the reflective displaying devices and the projecting lens set, for combining the color image-formation beams to form an image-formation beam to enter the projecting lens set along the light paths; and

a plurality of plate sets, respectively implemented between the projecting lens set and the reflective displaying devices, wherein the lens sets respectively reflect the color illuminating beams to the reflective displaying devices by a non-zero incident angle.

11. The off-axis image projection system of claim 10, wherein each of the plate sets comprises:

a first plate; and

a second plate,

wherein the color illuminating beams are respectively incident to the second plates, reflected to the first plates by the second plates, and reflected to the reflective displaying devices by the first plates.

12. The off-axis image projection system of claim 11, wherein the first plates are respectively implemented on the related light paths between projecting lens set and the reflective displaying devices, and the color image-formation beams travel through the first plates and reach to the color combining device.

13. The off-axis image projection system of claim 12, an included angle for each between the first plates and the light paths is in a range of greater than  $-45^{\circ}$  and less than  $0^{\circ}$  as well greater than  $0^{\circ}$  and less than  $45^{\circ}$ .

14. The off-axis image projection system of claim 10, further comprising a plurality of field lenses, wherein the field lenses are respectively adjacent to the reflective displaying devices, wherein the illuminating beams are respectively incident to the reflective displaying devices through the field lenses, and the reflected image-formation beams travel out through the related field lenses.

15. The off-axis image projection system of claim 10, further comprising:

a plurality of polarizing plates, relating to the reflective displaying devices, and respectively implemented between the illuminating source and the related reflective displaying devices; and

a plurality of analyzers, relating to the reflective displaying devices, and respectively implemented between the color combining device and the related reflective displaying devices.